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2	2	hand\$1 or palm\$1)near3 recogni\$5)with(ratio\$2 near5(area\$1 or surface\$1 or volume\$1 or perimeter\$1 or circumference\$1 ot length or width	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/27 13:13
3	1	hand\$1 or palm\$1)near3 recogni\$5)with(ratio\$2 near2(area\$1 or surface\$1 or volume\$1 or perimeter\$1 or circumference\$1 ot length or width	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/27 13:15
4	0	(hand\$1 or palm\$1)near3 recogni\$5)and(ratio\$2 near5(area\$1 or surface\$1 or volume\$1 or perimeter\$1 or circumference\$1 ot length or width) and((hand\$1 or palm\$1)near3 recogni\$5)with(outer near3 sides)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/27 13:17
5	32	(hand\$1 or palm\$1)near3 recogni\$5)and(ratio\$2 near5(area\$1 or surface\$1 or volume\$1 or perimeter\$1 or circumference\$1 ot length or width) and((hand\$1 or palm\$1)near3 recogni\$5)and(outer near3 sides)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/27 13:18
6	32	(hand\$1 or palm\$1)near3 recogni\$5)and(ratio\$2 near5(area\$1 or surface\$1 or volume\$1 or perimeter\$1 or circumference\$1 ot length or width) and ((hand\$1 or palm\$1)near3 recogni\$5)and(ratio\$2 near5(area\$1 or surface\$1 or volume\$1 or perimeter\$1 or circumference\$1 ot length or width) and((hand\$1 or palm\$1)near3 recogni\$5)and(outer near3 sides))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/27 13:20
7	228	(hand\$1 or palm\$1)near3 recogni\$5)and(ratio\$2 near5(area\$1 or surface\$1 or volume\$1 or perimeter\$1 or circumference\$1 ot length or width) and @ad<20010109	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/27 13:20
8	21	((hand\$1 or palm\$1)near3 recogni\$5)and(ratio\$2 near5(area\$1 or surface\$1 or volume\$1 or perimeter\$1 or circumference\$1 ot length or width) and ((hand\$1 or palm\$1)near3 recogni\$5)and(ratio\$2 near5(area\$1 or surface\$1 or volume\$1 or perimeter\$1 or circumference\$1 ot length or width) and((hand\$1 or palm\$1)near3 recogni\$5)and(outer near3 sides))) and @ad<20010109	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/27 13:20

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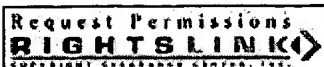
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Grasp recognition using a 3D articulated model and infrared images

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Abstract:

A technique to **recognize** the shape of a grasping **hand** during manipulation proposed; which utilizes 3D articulated **hand** model and a reconstructed 3D **v** from infrared cameras. Vision-based **recognition** of a grasping **hand** is a tou because a **hand** may be partially occluded by a grasped object and the **ratio** changes along the progress of the task. To **recognize** the shape in a single ti robust **recognition** method of an articulated object is proposed. In this meth volumetric representation of a **hand** is reconstructed from multiple silhouette 3D articulated object model is fitted to be reconstructed data to estimate the the joint angles. To deal with large occlusion, a technique to simultaneously e time series reconstructed **volumes** with the above method is proposed, which automatically suppress the effect form badly reconstructed **volumes**. The prc techniques are verified in simulation as well as in a real world.

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